

Managing exotic afforestation incentives: Submission

Summary

Expansion of New Zealand's forest plantation area is essential to both meet our greenhouse gas commitments and to grow a bioeconomy that offers a sustainable future. Wood and wood fibre from exotic forest species will be required to fuel the emerging circular bioeconomy and generate economic wealth for our country, including wood product exports.

The NZETS offers an important opportunity to incentivise growers to plant permanent forests of productive exotic trees, forests that efficiently store carbon while also producing wood on a sustainable basis. Permanent production forests, managed on a continuous cover basis *for harvest*, regardless of species.

The permanent forest category was originally designed to reward landowners for establishing sustainable forests – exotic or indigenous – that will not be clear-felled for at least 50 years after they are registered in the NZ ETS. Forests in this category were to earn NZUs for as long as the carbon stock increased. Restricting this category to only native species will arbitrarily penalise those who plant exotic (faster growing, more productive) trees as a permanent forest for better environmental outcomes.

The proposal to restrict the permanent category under the ETS to only native trees would deter pastoral landowners from planting productive exotic forests. We ask that Government reconsider this poorly considered policy and instead refocus on forest management as a tool to ensure new permanent plantation “carbon” forests are also productive forests to meet the future needs of New Zealanders. These include both economic and environmental needs, achieved by sustainable management of forests for carbon, wood products, bio-feedstocks and biofuels. Exotic species provide all these benefits along with fast growth and the ability to sequester carbon on a significantly smaller area of land than if planted in native trees. All forests improve water quality, mitigate soil erosion, and improve biodiversity. Permanent forests just do a better job and should be encouraged regardless of species, therefore incentivised via the ETS.

Permanent forestry and ETS outcomes

Carbon is an important incentive for afforestation. Significant afforestation will be required for a transformational circular bioeconomy and to meet New Zealand's emission reduction targets. Permanent forests can offer improved environmental outcomes than rotation forests and can also store more carbon. Because exotic plantation forest species offer significantly faster growth and greater economic returns than native species, land users should not be disincentivised from planting permanent exotic production forests.

Production forests are forests that produce wood. However, the proposal to modify the permanent post-1989 forest category under the ETS only recognises:

1. rotational (clearfell) forests managed under the averaging rules, and
2. permanent native forest assumed to be retired from production.

This misleads stakeholders into assuming that permanent exotic forests are inherently “plant and leave”. Permanent exotic forests can be managed for production of wood. Silvicultural systems that maintain the forest canopy and mimic natural successional processes (continuous cover forestry) are well understood globally. The opportunity is to incentivise highly productive permanent forests with improved environmental outcomes via the ETS. The proposed changes disincentivise highly productive permanent forests with improved environmental outcomes via the ETS.

ETS policy settings should not arbitrarily focus on forest species, but instead on management activities required for a “permanent” forest to be productive while also mitigating risk to the forest and its carbon stock. “Exotic” species should not be distinguished from “native” species, but if required species could be categorised based on their characteristics. For example, shade-tolerant species are well adapted to uneven-age forest structures, are well-suited ecologically to continuous cover forestry, and so could be incentivised to a higher level than light-demanding species.

The new permanent forest category of the ETS is replacing the Permanent Forest Scheme Initiative (PFSI). Under the PFSI, harvesting was required to comply with continuous cover principles:

“Continuous cover forestry encourages the development of an uneven-aged forest structure through the progressive harvesting of individual trees or small coupes of trees. Under the PFSI, harvesting operations must retain a minimum of 80 percent of the pre-harvest basal area on each hectare for the first harvesting operation. For subsequent harvests, either a minimum of 80 percent of the existing pre-harvest basal area on each hectare or 80 percent of the previous pre-harvest basal area on each hectare (whichever is the greater) must be retained.”

The PFSI had a clear focus on establishing permanent forests not only for carbon storage, but also for sustainable timber production. This category offered a wholistic solution that mitigated biodiversity, erosion and water quality issues whether the trees were exotic or native, while rewarding landowners for their best-practice forest management. Harvest interventions were “enabled”, thus providing sustainable, ongoing employment from forest products. In contrast, the current proposal gives no consideration to harvest as a management tool under the permanent forest category.

Accounting for carbon under the averaging rules is specifically designed for rotation (clearfell) forestry, regardless of rotation length. Averaging is unsuitable for permanent forests, whether exotic or indigenous. The term “permanent forest” for the purposes of the ETS should not be redefined to mean retirement forests where no trees will be harvested.

Productive forests provide a range of products and economic activity via harvest of trees. Policy settings that provide for productive permanent forests offer the opportunity to transform the forest growing sector. In contrast the current proposal doesn’t even consider productivity of the forest, only the permanent store of carbon. Given that the land to be afforested is currently in production (pastoral farming), retirement from production on a grand scale cannot be in the economic interests of New Zealand and will not lead to a positive land use transformation.

Forest management and risks

The rationale for excluding exotic species from the permanent forest category appears to be that “safeguards are needed to balance the risks created by permanent exotic forests”. These risks are presented by the proposal as

pests, fire, damaged habitats for native species, biodiversity threats, and a relatively short lifespan compared to “well-managed” mixed native forests.

Any plantation that is not managed holds significant biological and environmental risk, whether native or exotic. The more actively managed the forest is, the lower the risk profile for it. In this context, forest “management” simply implies harvest of individual trees for revenue, that then funds active management of specific risks such as fire or pests, to retain the productivity of the forest. Exotic production forests are inherently “well-managed” because forest revenue is available to pay for interventions. Returns incentivise reducing the risk for catastrophic events such as windthrow or fire. The policy question should therefore be “how can permanent forests be managed to provide income, jobs and good environmental outcomes”. We suggest that measures to control “plant and leave” permanent exotic forests should focus on management interventions that consider risks and rewards rather than arbitrary species discrimination.

To constructively inform policy, relative risks (between native and exotic permanent forests) would need to be evidence-based and transparent. We suggest that the relative risk is overplayed because it is assumed that permanent exotic forests will not be managed, while somehow native forests will.

Indeed, the policy proposal introduces bias into the consultation process by including misinformation on forest management and species:

1. Longevity of the tree species is not relevant to longevity of the forest. Forest longevity depends specifically on management interventions, not the species or species mix. This involves the cycle of harvest and replacement, whether as individual tree, coupe of trees or clearfell.
2. There is no evidence to suggest that native species are more resilient and less susceptible to pest incursions and climate change than exotic species. Biosecurity risks and incursions for native species include recent diseases such as Kauri dieback, totara dieback, myrtle rust and pests such as painted apple moth. Indeed, the risk is exacerbated given that our “long-lived” native trees may not provide longevity in plantations and may not adapt well to climate change in the long timeframes involved. In contrast a fast-growing species offers the grower a lower risk profile because of the higher tree turnover, thus species can be easily changed if necessary.
3. Fast-growing exotic species are available that are ecologically adapted to uneven-aged forest structures while also producing high value timbers. A range of exotic species are available to diversify production forestry in New Zealand, species that not only offer fast growth and high-value timber production, but that are also well suited to continuous cover permanent forestry. This underdeveloped opportunity offers industry transformation via product diversification, while also providing sustainable employment and improved environmental outcomes. Although native species also offer these

opportunities to some extent, their slow growth could mean waiting several hundred years to be productive, and if rich in biodiversity may not be harvestable,

4. Land used for afforestation, by definition, is pastoral land. Biodiversity is not relevant to the change of land use (afforestation) because pastoral land is not rich in biodiversity. The land has economic value and a change from one economic use to another does not damage habitats for native species, nor should biodiversity improvements be required unless agriculture becomes culpable.

Risks such as pests, disease and fire exist for all forest plantations, whether exotic or indigenous. These can only be managed by the landowner if they have a budget for such activities. Forest owners with mixed native and exotic forests tend to look after their native vegetation because the returns from their exotic forests can pay for this. Clearly production forests, like other productive land uses, offer improved opportunities for management of risks compared with retired (unproductive) forests. Indeed, exotic forests also provide habitat for indigenous fauna such as kiwi and karearea.

Management interventions that mitigate risk could become regulated under the NES-PF. For example, Regional Councils could approve afforestation applications under the NES-PF based on a management plan that includes but is not limited to fire breaks and pest control.



Biodiversity in exotic forest

Management and harvest interventions

Any “intention” to not harvest by the landowner at the time of planting is not set in stone. Carbon farmers do not need to consider timber production from their permanent forests at the time they plant them, simply because their current focus is on shorter-term carbon income. Also, information is not available on future harvest practices and technology suitable for permanent production forests. This doesn’t imply that later they won’t refocus on timber production for income. The wood market dictates management interventions that maximise revenue. The rational landowner will make decisions that make economic sense at that time, and the harvest volume of wood from a permanent forest will depend specifically on the future market value of the wood. Decisions for later will be made later. Once a permanent forest approaches its capacity for carbon storage and produces diminishing returns from carbon, the rational landowner would then explore the opportunity to produce income from harvesting trees while maintaining their stock of carbon. This embodies the fundamental paradigm of production forest management, which is simply to manage the forest to maximise returns over time.

A managed plantation involves production and succession via harvest and replacement. An unmanaged “retired” plantation, whether exotic or indigenous, involves senescence, death and decomposition of individual trees with no recovery of wood, followed by natural replacement (succession). Wood is not extracted from the retired forest and no interventions occur, with no associated income. The active forest manager understands that future decisions do not require attention right now, because the variables will change. Carbon returns are limited by time, whereas sustainable production can take place into perpetuity, with associated opportunities.

To inform rational policy and bridge the misinformation gap, MPI could conduct empirical research into future harvest scenarios for permanent exotic forests. For example, because some species (e.g. radiata) are light-demanding, these would require harvesting in larger coupes but at lower frequencies to retain a permanent forest structure. Sensitivity analysis that uses a range of carbon prices, wood prices, distance from market, interest rates and harvest strategies would then inform policy decisions and alleviate stakeholder angst resulting from not having access to evidence-based information.

Although “nature-based native forests” based on mixed age mixed indigenous species are being heavily promoted by proponents as the solution to building a new and purported “resilient forestry” paradigm, this is an untested strategy and therefore inherently carries with it high risk. In contrast the plantation forest industry has decades of research and innovation behind radiata pine and other exotic forest species, with a clear focus on producing income from the land. Decades of research will be required before a native plantation forest industry evolves to the point where it offers landowners a viable proposition with low risk and assured returns. Noting the national imperative for significant afforestation to take place in a short timeframe to meet national emissions targets, permanent native forest plantations at that scale will not sequester sufficient carbon in the time available to meet these emissions targets and may not deliver wood products and sustainable employment, nor a meaningful contribution to the economy. Significantly more land would need to be retired from productive pasture and New Zealand’s productive land resource will shrink with detrimental effects on regional economies.

Policy settings

Minister for Climate Change James Shaw stated in the proposal that "In its advice to government, the Climate Change Commission said we need to increase both native and exotic tree planting to meet our emissions targets". The Climate Change Commission also asked Government to consider the role of permanent exotic forests in its climate change response. The current proposal does not consider the role of permanent exotic forests in Government's climate change response. The Climate Change Commission holds no expertise or knowledge on forest types and species, so rely on policy decision makers to consider the merits of forest species objectively. What was required from Government was "A clear position on the role and desirability of different types of permanent exotic forests as carbon sinks". This has not occurred. By arbitrarily restricting the permanent forests category to native species, significantly more land would need to be retired from productive pasture and New Zealand's productive land resource will shrink with detrimental effects on regional economies. The Climate Change Commission also warned that "we need to reduce our overall reliance on forestry offsets, and better manage the impacts of afforestation". This should not mean disincentivising afforestation initiatives, but rather undertaking other measures to increase substitution of fossil energy with renewables.

It has long been understood that carbon sequestration from plantation forests is the lowest cost strategy for mitigating net emissions. That this would dampen uptake of renewable energy has also been understood and accepted since forest sequestration was conceived as a mitigation measure. Free allocation of carbon units to large emitters along with sheltering agriculture from the cost of their emissions also dampens the uptake of renewables. Successive governments have continued to shelter "business as usual" fossil energy consumption because New Zealand's plantation forest offsets "balanced the books". This reliance by New Zealand on forest removals to offset fossil emissions should not be to the detriment of those growing forest carbon sinks. Their responsibility is to manage their carbon in accordance with market signals and their responsibility does not extend to instigating uptake of renewables beyond supply of biomass feedstock. Although the market recognises that forest carbon is the lowest hanging fruit and therefore forest planting is incentivised, because Government committed to a carbon market, market forces should prevail. This might mean less short-term fossil emissions substitution with renewables, but if Government now require change sooner than what the market offers, this should take place directly in the emitting sectors (energy and agriculture).

The reality is that "exotic forests sequester carbon quicker than indigenous species, are cheaper to establish than indigenous species, and permanent exotic forests earn NZUs for longer than production forests". Permanent exotic production forests offer sustainable environmental and economic outcomes and "a significantly smaller area of land would be required to offset New Zealand's gross emissions through to 2050 with exotic forests". This is win-win, provided those forests are also managed for wood production.

The "problem", i.e. that the market "might not produce the best long-term outcomes for New Zealand (particularly when considering the state of the land, indigenous biodiversity, and economy that we leave for future generations)", is unsubstantiated. Government officials should consider issues with an objective lens rather than presenting a solution looking for a problem. Assuming that permanent exotic forests are inherently unproductive is fundamentally flawed. That land use change

from pasture to plantation forest somehow should support indigenous biodiversity is not a rational supposition. Proposing that permanent forestry should be the exclusive domain of indigenous species with inherently slow growth and poor economic outcomes does not present as sound economic policy. For afforestation to be part of an industry transformation, species are required that produce wood and that embrace economic sustainability.

Constructive policy proposals should be presented to stakeholders that seek to appropriately manage the impacts of afforestation.

Social and community needs

All New Zealanders support the need to balance new forest planting with the wider needs of local communities, our regional economy, and the environment.

New Zealand's primary economy is founded on exotic fauna and flora. We depend on primary production based on exotic species for our economic survival. To state that "a legacy of large areas of concentrated and permanent exotic forests" will not "offer a prosperous and sustainable footing for New Zealand in the long-term" is not correct. The key to prosperity and sustainability is in the management of new plantation forests. Large scale conversion of pastoral land to productive forests is not disruptive to rural communities, regional economies, and the environment. Outcomes are dependent on how land use change is undertaken and how that land is managed over time, rather than whether land use change is undertaken or whether the species are exotic or native. Land users should have the right to choose farming and forestry equally, without dogma attached. Both offer economic value, and neither should be stigmatised. Even if carbon is the driver for land use change and forests are not well managed for production while accruing carbon, the landowner should be able to choose exotic and native species without discrimination under the ETS.

A sound policy platform should not attempt to displace a productive land use with one that is unproductive, unless there is an evidence-based imperative for improved longer-term sustainability. This is not provided in the proposal, which instead appears to be politically motivated to misinform stakeholders. In contrast, a sound proposal would clearly state the issues (what are the impacts of afforestation), the desired outcomes (economic, environmental) and seek feedback on specific management options that seek to address the issues.

Lees Seymour, Chair, Forest and Wood Processing Industry Transformation Plan
lees.seymour.ncg@outlook.com

Dean Satchell, Member, Forest and Wood Processing Industry Transformation Plan
deans@nrc.govt.nz

Te Kapunga Dewes, Member, Forest and Wood Processing Industry Transformation Plan
tekapunga@whenuaoho.maori.nz

Robert Green, Member, Forest and Wood Processing Industry Transformation Plan
rbgreen@manulife.com

Kent Chalmers, Member, Forest and Wood Processing Industry Transformation Plan
kent.chalmers@cityforests.co.nz